4. [10 points] Let \( h(x) \) be a twice differentiable function defined for all real numbers \( x \). (So \( h \) is differentiable and its derivative \( h' \) is also differentiable.) Some values of \( h'(x) \), the derivative of \( h \) are given in the table below.

<table>
<thead>
<tr>
<th>( x )</th>
<th>(-8)</th>
<th>(-6)</th>
<th>(-4)</th>
<th>(-2)</th>
<th>(0)</th>
<th>(2)</th>
<th>(4)</th>
<th>(6)</th>
<th>(8)</th>
</tr>
</thead>
<tbody>
<tr>
<td>( h'(x) )</td>
<td>3</td>
<td>7</td>
<td>0</td>
<td>(-3)</td>
<td>(-5)</td>
<td>(-4)</td>
<td>0</td>
<td>(-2)</td>
<td>6</td>
</tr>
</tbody>
</table>

For each of the following, circle all the correct answers. Circle “NONE OF THESE” if none of the provided choices are correct.

a. [2 points] Circle all the intervals below in which \( h(x) \) must have a critical point.

\(-8 < x < -6\)
\(-6 < x < -2\)
\(-2 < x < 2\)
\(2 < x < 6\)
\(6 < x < 8\)

NONE OF THESE

b. [2 points] Circle all the intervals below in which \( h(x) \) must have a local extremum (i.e. a local maximum or a local minimum).

\(-8 < x < -6\)
\(-6 < x < -2\)
\(-2 < x < 2\)
\(2 < x < 6\)
\(6 < x < 8\)

NONE OF THESE

c. [2 points] Circle all the intervals below in which \( h(x) \) must have an inflection point.

\(-8 < x < -4\)
\(-4 < x < 0\)
\(0 < x < 4\)
\(2 < x < 6\)
\(4 < x < 8\)

NONE OF THESE

d. [2 points] Circle all the intervals below which must contain a number \( c \) such that \( h''(c) = 2 \).

\(-8 < x < -6\)
\(-4 < x < -2\)
\(-2 < x < 0\)
\(2 < x < 4\)
\(6 < x < 8\)

NONE OF THESE

e. [2 points] Suppose that \( h''(x) < 0 \) for \( x < -8 \), and \( h(-8) = 7 \). Circle all the numbers below which could equal the value of \( h(-10) \).

\(-2\)
\(-1\)
\(0\)
\(1\)
\(2\)

NONE OF THESE